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Tipula abdominalis.
(End of Larva.)

NOVEMBER, 1902.

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XIII. NOVEMBER, 1902. NO. 9.

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Notes on the Early Stages of Culex canadensis Theob.

BY JOHN B. SMITH, SC. D.

This species was brought to my attention by Mr. J. Turner Brakeley, who wrote me from Lahaway, May 11, 1901, that he had found mosquitoes common in the woods on that day at one point. They seemed to be very fresh, made no attempt to bite, seeking rather to get away, and males were quite as abundant as the females. Mr. Brakeley was at this time following out the development of the pitcher plant mosquito, *Aedes smithii*, but he was interested enough in the occurrence of this new species to make a hunt next day for the breeding places, which he judged rightly enough, must be close by.

May 12th, examined first a spring formed in a hole left by a pine tree that had blown down; the root mass yet partly sheltering the spring. He found there a number of very dark gray, almost black wrigglers and pupæ and secured specimens. This is a permanent pool containing water all winter, and there is no reason why the larvæ could not have been there all winter of that season. Similar larvæ, pupæ and

empty pupa-skins were found in a rather large road puddle near a cranberry-bog. This place is always moist, and was probably filled with water all winter; but it does lose all water during the summer except after a heavy rain. In the shallow edges of a reservoir close by, no larvæ were found and none were found in road-puddles out of the woods. Adults emerged later in the day from some pupæ, and many larvæ pupated; the usual period of the pupal stage being 3 to 4 days. All the adults were sent to me and all were *canadensis*, the determination being made by Mr. Coquillett.

May 13th, another tour of investigation turned out a lot of very small blackish wrigglers as well as others that were almost or quite full grown, and the indications were that a second brood was already developing. In a spring, filled with leaves so that not a drop of water was visible, the leaves were shoved aside and in the water beneath, some half-grown wrigglers were found. Mr. Brakeley noted that these larvæ were much more active and "scary" than those found in the pitcher plants, and he suggests as a reason that they have more natural enemies to fear, and are hence more easily startled.

May 14th, quite a number of adults were noted in the woods, and again it was noted that they manifested no inclination to bite. Nor did any of them come to the house which was very close by—certainly not over 500 feet from the edge of the woods! They seemed to be, strictly speaking, woodland mosquitoes.

May 16th, the number of mosquitoes was much reduced; but very small larvæ were now found along the edge of the reservoir where it was more or less grassy, and many empty pupa shells were seen.

May 17th, adults began to issue from pupæ that had formed subsequent to May 12th, and an average period of 3½ days was established for this stage. A lot of the young larvæ was secured, but they did not do well in confinement and soon died. On the 19th, the full grown larvæ and pupæ had disappeared, and only small specimens were seen.

June 1st, I was at Lahaway and found this species common in the woods. Males were obtained by sweeping with the net

among the bushes, while females were taken readily in flight. They were not especially blood-thirsty, and while they would bite if left undisturbed, they were easily scared off. Among those that were taken in flight was one example filled with blood, which had not been obtained from any of our party. It was taken deep in the woods near an old spring, and it is doubtful whether any human being had been in that immediate vicinity for a month. There was no house within half a mile, and no traveled road anywhere near; yet from some source this specimen had obtained a meal of blood. Larvæ and pupæ were found everywhere in the road and other woodland pools, and in all the springs that we examined. All the adults bred proved to be *canadensis*. Followed out the course of a small stream through a marshy meadow and examined numerous pools, finding wrigglers wherever there was no sediment of iron rust. There is much bog iron here and most of the pools are "rusty"; where this was the case, there was no mosquito life. I verified the fact that none of these mosquitoes came to the house only a few rods off, and noted that where the abdomen was distended in those I caught, the crop contents consisted of a clear, almost colorless liquid. At this time very minute larvæ were found in the pools with those that were full grown—exactly the condition noted by Mr. Brakeley on the 16th. Assuming that the brood maturing June 1st was that started May 16th, it would give a 15-day period for the full development. As adults recently hatched were seen in numbers, May 11th, it would mean that the larvæ from which they came were in the pools during the latter part of April. Many of these pools came into existence during the winter—how did the larvæ get into them in spring? Many places containing larvæ June 1st were fast drying up into mere mud holes and would hardly be anything else until the following winter.

Nothing more was done with this species during the summer of 1901; but in October, Mr. Brakeley took the matter up again and reported larvæ in one of the springs on the 16th, after there had been frost and ice. On the 27th of the same month, larvæ and pupæ were obtained from the springs, and

on the 29th and 30th adult *canadensis* were obtained from the latter. In one spring which had been cleaned out during the summer, it was fairly alive with wrigglers just or recently hatched. Query if this is the hibernating crowd, the tail of which will be found next May. I see no reason why these larvæ in the spring should not live in there throughout the winter. Collections were continued from time to time and minute larvæ, evidently referable to this species were found November 8th, after heavy frosts, forming ice half an inch thick on exposed ponds. Other larvæ were collected November 18th and 25th, and on the 26th, with the thermometer ranging from 29½ to 36° in the open, the water in the spring was found to be 45°—warmer than any other waters on the place.

It was intended to continue these observations during the winter, but an attack of typhoid fever intervened, and not until March 23 and 24, 1902, were systematic collections again made by Mr. Miller H. Emley at Mr. Brakeley's orders and under his direction. The result of this collection was a large series of larvæ of *C. canadensis*, ranging from less than half to almost full grown, and all of these were sent me.

We have, therefore, very small wrigglers recorded as late as November 25, 1901, and somewhat larger specimens recorded as early as March 23, 1902. The inference is that the winter was passed in the larval stage, and as this was in running, spring water which rarely reaches the freezing point, the inference does not seem unwarranted.

It should be said that in October and November, 1901, Mr. Brakeley was scouring the woods for the hibernating quarters of *Anopheles*. He found the species of that genus, and *Culex pungens* in large numbers. He found no *C. canadensis* adults, and the inference is fair, in view of the thoroughness of the search, that there were none. Hibernation in the egg stage is not excluded; but unfortunately the egg of this species is not known, nor is the place or manner in which it is laid. A sending made during the early part of April arrived in bad condition; but a collection made on the 22nd reached me safely a day later. Adults began issuing on the 24th and up to the

morning of the 26th, some 40 specimens were secured; most of them males. Another lot reached me April 30th, and adults began to issue May 1st.

It is probable that this is the same brood observed by Mr. Brakeley, May 11, 1901, and it would indicate a very slow growth early in the year. There was certainly a month between the first larvæ and the first adult. It seems certain also that the development of this series is very irregular, as indeed might be expected, if the larvæ hibernated. On the other hand, the larvæ found in November, 1901, were not in sufficient abundance to account for the numbers found in the spring, unless the wrigglers had sought winter quarters. That this is not improbable is indicated by Mr. Brakeley's note that larvæ in November preferred remaining at the bottom of the breeding jar.

April 30, 1901, I visited the outskirts of Elizabeth with Editor McBride, of the Elizabeth Journal, and Dr. Robinson, of the Grammar School, who were conducting a mosquito crusade in that city. In a bit of swampy woodland on the Westfield road, pools were found that contained a few larvæ and many pupæ. From the pupæ *canadensis* and *cantans* were bred; but what larvæ remained all produced *canadensis*.

May 8, 1902, I sent Mr. E. L. Dickerson to the College Farm to investigate the woodland pools, and he found a series of full grown larvæ and pupæ, and another series of very small larvæ. Evidently the second brood had already made a start.

May 22nd, a specimen of the adult was captured at Bordentown by Mr. Brakeley, and at varying periods during the summer occasional adults were obtained; but not in such numbers or under such conditions as to require special notice.

This is the earliest and the latest mosquito occurring in New Jersey, but it never becomes a nuisance in towns or in houses. It will bite when given an opportunity, but does not seek the opportunity. Its normal food is something other than blood, and its usual haunts are such as to make access to animal juices exceptional. During the summer it drops out of sight and does not occur in collections of the common mosquitoes of any locality.

As to breeding places, it prefers woodland springs and pools, or ditches carrying spring water, It is almost universal in pools formed by crossing a road, and is essentially a cold-water species. I have never seen the larva in stagnant open water, and have never received it from such localities.

DESCRIPTION OF THE LARVA.

In its earlier stages the little larva is quite characteristic and readily recognized. The head is black, body slate gray, varying a little in tint, and the neck is somewhat contrasting pale; looks almost as if the larva had on a white collar. The anal siphon is large in proportion to the insect, and is stout rather than long. The slaty color persists during life, but the white collar disappears and the head is brown rather than black. It is altogether a stout larva and very active, the anal siphon stout in proportion to its length and shortest just before the change to the pupa. The head is convex above, flattening toward the front, of moderate size, a little transverse, the sides evenly rounded to the nearly straight front. In color it is yellowish brown or darker, with irregular blackish markings turning toward the centre or the front. The eyes are large, transverse and black or blackish. The antennæ are as long as the head, a little curved, stouter at base, narrowing very gradually, outer two-thirds darker though hardly black, rather bluntly terminated and sparsely set with small spines which become larger and more obvious outwardly. There is a large pit or puncture within the basal half from which arises a long, black bristly hair tuft, which reaches almost to the tip. At the tip there is one long bristly hair, and at its base arise several smaller, stiff spines. Mouth brushes as usual, the mentum triangular, its edges toothed. Thorax enlarged, almost circular in outline, convex, the lateral hair tufts prominent and about as long as the thorax is wide. Abdomen cylindrical, about half the diameter of thorax, tapering a little, the segments not deeply incised. The lateral hair tufts are somewhat sparse, shorter than those of thorax, becoming less obvious backward. The air tube is smoky brown, cylindrical, stout, of medium length, tapering somewhat from its middle to the tip. In the mounted cast skin the tube is about 2½ times as long as wide; but in the larva just before it is full-grown, the tube ia nearly 3½ times as long as it is wide; the double row of teeth short and extending less than half the length of the tube. The last segment is about as long as wide, chitinous, brown, the fringe of black hair tufting long and more sparse above. The anal processes are slender, short and inconspicuous. The pupa offers nothing out of the normal, so far as my observation extends.

The adult is rather easily recognized by the distinctly white banded tarsi, the terminal joint of posteriors white, by the

unbanded beak and by the brownish color in addition to all. It probably occurs throughout the State where the conditions that will permit its breeding, exist.

Notes on Vespoidea.

By H. L. Viereck.

Polybia nigripennis (Fabr.)

Polistes nigripennis Fabr. Syst. Piez., 1804, p. 272, n. 14.

Polistes nigripennis D. T. Cat. Hym., ix, 132, 1894.

Clypeus with the anterior edge forming an obtuse angle, a little broader than long. Front with an impressed line extending from the anterior ocellus down to a little distance above the margin of the clypeus.

♀ *Length* 15 mm.—The entire tegument opaque covered with a very fine and short golden pubescence, that on head and thorax shortest, not so apparent as that on the thorax, which has a beautiful golden lustre when held in certain lights. There are a few scattered punctures on the clypeus. First joint of flagellum as long as the two following joints united. Prothorax and mesopleuræ finely indistinctly punctured. The upper half of the latter has a crooked impressed line near the posterior margin. The dorsulum has a median impressed line extending to near the middle, a median, longitudinal, impressed line on the postscutellum and on the posterior face of the metathorax.

Testaceous or light brown, abdomen and legs darkest, head and last four segments of abdomen black, wings fuliginous.

One specimen in Coll. Acad. Nat. Sciences, Phila., from Georgetown, B. Guiana, S. Am.

Polistes carnifex Fabr.

Vespa carnifex Fab. Syst. Entom., 1775.

Polistes major Sauss not Beauv. Etud. Fam. Vespid. ii. p. 90, 1853.

Polistes carnifex Sauss in part. Id.

Polistes carnifex Fox in part. Proc. Calif. Ac. Sci., iv, 112, 1895.

Clypeus ♀ more deltoid than quadrate, distinctly convex. Clypeus in ♂ longer than wide.

♀ *Length* 28 mm.—Clypeus with sparse punctures, a raised point between the insertion of antennæ. Metathorax with a median longitudinal furrow, the surface transversely striated. First joint of flagellum as long as the following three united. Entire tegument opaque, covered with an almost imperceptible golden, short pubescence. The head above the dorsulum, first half of antennæ, a triangular mark on apical margin of each side of metathorax, the furrow on the same, the legs, excepting the small tarsal joints and parts of the coxæ, first segment, exceping apical bands, the second all but the apical half, the third, with the exception of

apical two-thirds, dark brown to almost black, the rest of the insect more or less yellow. Wings deep yellowish brown, nervures dark brown.

♂ *Length* 25 mm.—Excepting the sexual differences, similar to the ♀.

The ♀ from San Jose Del Cabo, L. California. The ♂ Jilotlan Jalisco, Mexico. While identifying the latter specimen it was found two species had been confused under *P. carnifex* Fabr.

Polistes major Beauv.

Polistes major Beauv. Ins. d'Afr. et d'Amer., p. 206, pl. viii, fig. 1.
Polistes carnifex Sauss. in part. Etud. Fam. Vespid., ii, 90, 1853.
Polistes carnifex Fox in part. Proc. Calif. Ac. Sci., iv, 112, 1895.

Clypeus ♀ more quadrate than deltoid, not so distinctly convex. Clypeus in ♂ as long as wide.

♀ *Length* 20 mm.—Surface of face between the insertion of antennæ only slightly raised, a short longitudinal impressed line just above. Otherwise the sculpture and color pattern is much the same are in *P. carnifex*.

♂ Length 20 mm.

The structural differences given and the size readily separate this species from the large *P. carnifex* Fabr.

Mazatlan, Mexico. San Domingo. (Coll. Am. Ent. Soc.).

A New Phasmid from Mexico.

By A. N. Caudell. Washington, D. C.

In the collection of insects made in Mexico some years ago by Dr. E. Palmer, was a single specimen of a new species of walking stick, with short antennæ, belonging to the genus *Bacillus* as used by Scudder for the United States species.* This insect may be called *Bacillus palmeri* and described as follows:

General color testaceous, much lighter below and on the head; dorsally, except on the head and pronotum, almost black. Head as long again as broad, enlarging from behind forwards and longitudinally attached, light testaceous, slightly paler below and with a dark postocular stripe, scarcely reaching the thorax, just at the upper margin of the eye is a short slender black line; dorsally between the antennæ two carinæ start, and after proceeding backwards a short distance, break up into an irregular mass of smaller tortuous carinæ, and then continue on as three sub-parallel carinæ, all of which terminate about midway of the head, the space between them somewhat infuscated. The antennæ are but

* Psyche, vi, 372 (1893).

little longer than the head, the basal segment very broad and composing a fifth of the entire length. Pronotum short, not as long as the head; meso thorax distinctly longer than the metanotum; intermediate segment short and inconspicuous; legs long and slender, all similar and keeled below to the apex; abdominal segments elongate, seventh and ninth subequal, eighth slightly more than one half as long as the seventh; anal plate acutely triangular and distinctly keeled. Length of body from head to tip of anal plate, 58 mm.; head, 3 mm.; antennæ, 5 mm.; prothorax, 2.25 mm; mesothorax, 14 mm.; metathorax, 10 5 mm.; abdomen, including intermediate segment, 28 mm.; fore femora, 22 mm.; middle femora, 22 mm.; hind femora, 19 mm.; cerci, 2 mm.

One female, Durango, Mexico, July, 1896. *Type*, No. 6603, U. S. N. M.

The much longer legs of this species will serve to readily separate it from the United States species.

A New Ceropales (Hymenoptera).

BY H. L. VIERECK.

Ceropales Latr. = **Agenioxenus** Ashm.

A specimen of *Ceropales maculatus* Latr., from Hastings, England, runs to *Ceropales* as given in Mr. Ashmead's table. In *Ceropales robinsoni* Cress = *C. nifiventris* Walsh, the cubitus in hind wings originates *behind* the transverse median nervure and not *before* as in Mr. Ashmead's table; in other words, the type of *Agenioxenus* Ashm., is congeneric with the type of *Ceropales* Latr. (*Ceropales maculatus* Latr.), consequently *Agenioxenus* must be placed as synonymous with *Ceropales* Latr.

Ceropales quaintancei n. sp.

Almost entirely dull ferruginous, covered with very fine golden pubescence, wings pale fuliginous.

♂ *Length* 10.5 mm.—Head with only a few indistinct punctures on the front, a shallow fovea extending down to the antennal insertion, from a short distance below the anterior ocellus. Length of the first joint of flagellum about equal to length of the second. Pronotum with well separated indistinct punctures, the propleuræ on the anterior half divided into an upper and lower half by a well impressed fovea. Dorsulum with a fine line extending back to posterior margin from little before the middle, situated near the lateral margin, from the middle of the dorsulum to the posterior margin there is a moderate medial elevation, punctures of the mesonotum separated, shallow. Punctures on mesopleuræ more scattered

than on the dorsulum. Scutellum and postscutellum practically impunctate. Metathorax indistinctly punctured, an impressed line medially starting at the anterior margin and obsolete beyond the middle, metapleuræ separated from the metanotum by a very moderate curved impressed line. Abdomen impunctate.

The apical third of the antennæ is a dark brown.

Type Coll. Acad. Nat. Sciences, Philadelphia.

Type locality, College Park Maryland. September, 1892. Received through Mr. Quaintance of the Maryland Agricultural College and Experiment Station.

Two ♂ paratyes, S. Illinois (C. Robertson), 12 mm. long. These specimens have yellow trimmings. Labrum, clypeus, border along inner eye margins, the lower division of the propleuræ, a narrow line along the outside eye margin, posterior border of the pronotum, poscutellum, posterior angles of metathorax and a line on posterior coxæ, yellow. Comes nearest to *C. elegans* Cress., but that has no fovea on the front, has hyaline wings and more pale markings.

A New Method for Studying Venation.

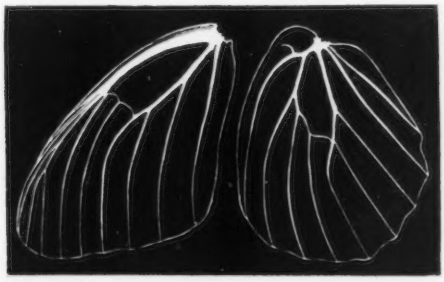
By Alfred P. Hall.

During the past winter while studying the venation of Lepidoptera, I felt the need of a method for preserving the results in compact form for easy comparison. Mounting on glass was much too bulky for my purpose, and after several experiments I hit upon a method that seems to meet all the requirements, which possesses the merit of simplicity as well This method being new to several entomologists to whom it has been shown, it occurred to me that it might be of interest to other collectors as well, and herewith give directions which are easily followed by any one.

The wings are first moistened with alcohol and then put in Eau de Javelle solution until thoroughly bleached. They are then removed to fresh water for five or ten minutes to remove the lime solution, thus preventing deposits in drying. Remove the wings by immersing a piece of paper in the water and floating the wing upon it, much in the manner of mounting sea weeds. The paper and wings are then removed together and

the surplus moisture removed with blotting paper. Lay a clean piece of paper over the wing and place between the leaves of a book and dry under pressure.

When dry the wings separate easily from the paper and may be fastened to a sheet of glass with an atom of shellac. Place this sheet of glass in an ordinary photographic printing frame with a sheet of sensitive paper, and place in the sun until the paper turns dark and bronzy. On removing the paper the outline and veins of the wing are seen in exquisite detail in white against the dark ground.



Velox or any of the developing papers may be used and then the work can be done in the evening. The prints are finished in the usual way and may be mounted on cards or preserved in an album, making a collection that is not only beautiful to look at but also of scientific value as well. This process is not confined to Lepidoptera alone. The wings of Odonata make beautiful prints and need no preparation, the larger Diptera and Hymenoptera give prints of remarkable clearness which may be easily studied with a glass.

Insect Enemies: A Matter of Taste.

By F. M. Webster, Urbana, Ill.

The saying that "what is one man's meat is another man's poison," may not apply exclusively to humans. The lower animals have their individual idiosyncrasies as well as men.

Among domestic animals, some individuals are slow and deliberate, others quick and impatient. Some feed freely upon articles of food that will be avoided by other individuals. Birds are known to have individual likes and dislikes. No one who has reared insect larvæ to the adult, has failed to observe the difference in the individual temperament of the several members of the family. Some will be quiet and docile so to speak, while others will be iritable and uneasy. In a most excellent series of papers on "The Wanderings of Insects," Professor Karl Sajó has justly remarked that, among insects, there will be some individuals of the same species that will be wanderers while others will be stay-at-homes. Among the Hymenopterous enemies of other insects, while there are some species that appear to be generally parasitic on other insects, the majority are more exclusive in their hosts, and particular genera will be found parasitic on another, or on another family, so that, knowing the species of a parasite, we can determine at once the order and not unfrequently the family or genus to which the host insect belongs. But even here, it is still to be proven that there are not individual exceptions; it is by exceptions that nature frequently protects from extermination. And, it is here as elsewhere, we only know what we see, and while on this basis we may form a good idea of the nature of effects that will follow certain causes, we must not lose sight of the fact that there are exceptions to everything—except death itself. For this reason, a single observation on the habits of an insect, bird or animal is worth just that much; it may be the one out of a hundred or even thousand exceptions. Therefore, I wish it to be clearly understood that I do not wish to depreciate the value of isolated observations, but to point out the very great need of further investigation with several individuals, in order to be sure that it is the rule and not the exception that we have observed, and this is quite apropos to the criticism of duplication of work, that is frequently offered. The so-called duplication, is not in any sense compilation, and if an observation is honestly made and correctly recorded, it is never without value, and frequently it is the one thing necessary to an accurate conclusion. We have

insects that are supposed to be distastful to birds and even other insects, and information on these points is always in order, but we must be sure that, what we suppose to be normal, is not really exceptional.

Our milkweed butterfly, *Anosia plexippus* L., which breeds in the north during summer and in the fall migrates to the far south, is supposed to be distastful to birds, but on an island in Aransas Bay, on the gulf coast of Texas, it is eaten by a mouse of the genus *Onychomys*. So, while the butterfly may be distastful to birds, it is not necessarily so to rodents. Now, another bit of information has been secured which is not only valuable, but it illustrates the fact that one truth gained in one part of the world frequently goes to strengthen another, secured in another part of the world. Mr. J. G. O. Tepper, curator of the South-Australian Museum, at Adelaide, contributes a note to a recent number of "Garden and Field," which illustrates this point exactly.

Mr. Tepper is in the habit of taking his noonday lunch in a quiet room several flights of stairs above the ground, and some two years ago cultivated the acquaintance of a solitary mouse which he fed with crumbs and scraps left from his lunch, until mouse became quite tame. Finally, some damaged and useless insects were left loosely on the window-sill frequented by the mouse, and these were afterwards found reduced to a few fragments. Suspecting "mousie" of having done this, he replaced them with others and found that his suspicions were well-founded, and the dead and dried insects were consumed with evident satisfaction, without exception. Then, other insects both dead and living were submitted and also eaten. These last consisted of both fresh and dried blowflies, beetles, caterpillars, cockroaches, etc., and were "preferentially" consumed. Mr. Tepper further states that their common "cockchafer," *Anoplognathus odewahui*, had been refused by a pet Laughing Jackass (*Pralcyon gigas*, F. M. W.), but the mouse had no such squeamish tastes and ate all that were offered it. Here, again, we have the phenomenon of a native bird refusing an insect that is readily devoured by a mouse. The only pity is that Mr. Tepper did not experiment with other mice and, if

possible, with another bird. However, it is certainly interesting that this observation should bear out so nicely the behavior of the mouse on the coast island of Texas.

I have quite recently noticed our common black ant unceremoniously fastening its jaws into and dragging away a crushed but scarcely dead *Chrysopa*, the odor of which is certainly vile enough to disgust almost anything. Incidentally, I saw at the same time several *Cicindela vulgaris* rush upon these same ants and seize them, but did not so far, as I could observe, kill them. This is the species of ant, however, that is mimicked by the Capsid, *Pilophorus amænus*, and might have been inedible for the beetle, as smaller ants running about among them were certainly caught and eaten by the tiger beetles. This tragedy of the ants, *Chrysopa* and *Cicindela*, took place on the brick walk bordering a busy street, where people were continually passing to and fro, frequently interruping the insects and crushing them under foot. It was an isolated observation and I wondered at the time if such things were usual, or whether I had happened upon an exception to the rule, for I have long ago learned that there is very much that goes on among even our most common insects that the entomologist does not see. Just why, may be as much of a psychological as an entomological problem, for once observed there is very often no difficulty experienced in observing the same actions afterwards. So, then, the three questions, when observing insects being attacked by beasts, birds or each other, or, seemingly being distasteful to one or all of these, are as follows: is it a case of individual variation of taste, or is it usual, or has this been going on about me for years and been overlooked by myself and others? The moral would be, then, that close observations are always in order, even though having little value in themselves, as they may contain the key that is to solve the mystery of some other similar phenomenon, that some one else has observed, perhaps in another part of the world. Too much stress could be placed on a single observation, or those made on a single individual, but these may be taken as indicating what may *possibly* be found true of larger numbers on much extended investigations.

Compound Vernacular Names of Insects.

By Edwin W. Doran, Ph. D.

The necessity for uniformity in writing the common, or vernacular, names of insects is apparent to every student of entomology; but it must also be apparent to every one that there is no uniformity, especially in compounding these names. Entomologists owe to the present generation and to posterity something more than the mere accumulation of facts. Educative expression of these facts is necessary, and correct form in writing is worthy of their attention.

The question of uniformity in writing the vernacular names of insects has been discussed somewhat at various times by entomologists. In 1897 Prof. C. P. Gillette presented a paper and brief list of words at the annual meeting of the Association of Economic Entomologists, and in the following year I presented a paper before the same body suggesting certain corrections in that list. But these and other discussions seem to have had little effect. I, therefore, call attention to the subject again, and have also undertaken the preparation of a much more extensive work, containing a list of three or four thousand names and an introduction giving the principles and rules for compounding names. This I hope to publish soon. The introduction in that paper has been prepared chiefly by Mr. F. Horace Teall, department editor of the "Standard Dictionary." I have drawn upon that largely in presenting the principles and rules of compounding names of insects in this paper.

Custom cannot be relied upon in determining the proper forms of insect names, as it is entirely unsettled, different authors using different forms, and often the same person using different forms in the same publication. Custom, therefore, is confusion. For example, we find all the following forms in common use: "Elm leaf beetle," "elm leaf-beetle," "elm-leaf beetle;" "apple tree tent-caterpillar," "apple-tree tent caterpillar," "apple-tree tent-caterpillar."

But when we take names like "reddish yellow spruce bud worm," which may be written in at least eight forms, or "red humped apple tree caterpillar," "sooty corn root web worm,"

"two striped sweet potato beetle," and many others, with all their combinations, the mind is overwhelmed in chaos. Besides, questions relating to good use in language are not settled by mere majorities, but by the majority of the best speakers and writers. Moreover, the compounding of the names of insects is a question pertaining to the correct use of English, and need not be settled by entomologists alone, unless they are also authorities on English. Unfortunately many are not. Word-forms must be determined by language principles.

The following *general principles* are quoted from the "Standard Dictionary," and are applicable to insect names.

"1st. That all words should be separate when used in regular grammatical relation and construction, unless they are jointly applied in some arbitrary way.

"2d. That abnormal association of words generally indicates unification in sense, and hence compounding in form.

"3d. That no expression in the language should ever be changed from two or more words into one (either hyphened or solid) without change of sense."

From these "principles" we may deduce the following *general rules* specifyng the conditions under which the names of insects should be written in compound form:

1. A general name used with that of a plant or a host or prey prefixed for specification; as, *potato-beetle, onion-fly.*

2. A general name used with any other name prefixed for specification denoting similarity, habit, or characteristic; as, *buffalo-gnat, army-worm, blister-beetle.*

3. Any pair of names in joint arbitrary use; as, *walking-stick, currant-borer, leaf-roller*

4. A phrase consisting of an adjective and a noun used as a mere name; as, *bluebottle, grayback, longsting.* These are more often writen solid without the hyphen.

Names like *leaf-crumpler, leaf-folder,* and *leaf-roller,* are unquestioned compounds, and the weight of usage and authority favors their preservation as such in specific phrases like *apple leaf-crumpler,* etc. Grammatical reasoning might be made strongly to prescribe such forms as *apple-leaf crumpler,* but that would give an unnecessary separation of two parts of a

normal compound, and would constitute a new category of name-forms that may well be spared.

In order to illustrate, as far as possible, all the foregoing rules and principles, I have selected the following brief

LIST OF NAMES.

Apple bark-beetle.
Apple-tree tent-caterpillar.
Army-worm.
Banded soldier-bug.
Barley root-louse.
Bean leaf-beetle.
Beet carrion-beetle.
Black-currant gall-mite.
Buffalo-gnat.
Cabbage plant-louse.
Cabbage-worm.
Case-making clothes-moth.
Cherry twig-tier.
Cigar-case bearer.
Clover-head thrips.
Clover root-borer.
Colorado potato-beetle.
Corn-root plant-louse.
Dark-sided cutworm.
Dried-currant moth.
Egg-parasite.
Elm-tree white scale.
Fall canker-worm.
Flat-headed peach-borer.
Forest tent-caterpillar.
Gall-maker.
Giant East-Indian bee.
Gooseberry fruit-fly.
Grape gall-gnat.
Grape-vine flea-beetle.
Green June-beetle.
Harlequin cabbage-bug.
Hedge-hog caterpillar.
Hickory-stem gall-louse.
Horse-fly.
Imported cabbage web-worm.
Jumping tree-cricket.
Kissing-bug.
Leaf-cutting ant.
Lesser migratory-locust.
Locust twig-borer.
Maple gall-moth.
Mosquito-hawk.
Mulberry-silkworm.
Nine-spotted Ladybird.
Oak bark-weevil.
Olive-brown bud-worm.
Orange rust-mite.
Ox-gadfly.
Oyster-shell bark-louse.
Peach fruit-worm.
Peach-tree bark-borer.
Pear-tree blister-beetle.
Pickled-fruit fly.
Pine emperor-moth.
Pistol-case bearer.
Plum leaf-worm.
Post-oak coccid.
Potato stalk-borer.
Quince curculio.
Rascal leaf-crumpler.
Raspberry gouty-gall beetle.
Red-backed cutworm.
Red-legged locust.
Seventeen-year cicada.
Shade-tree insects.
South-African ladybird.
Three-lined leaf-beetle.
Vine-curculio.
Western onion-thrips.
Yellow-pine bark-beetle.
Zebra-caterpillar.

As so little has been published on this subject, discussion or criticism will be welcomed.

A List of the Bombycidae Found at Webster, New Hampshire.

By Charles F. Goodhue.

LYCOMORPHA.

Pholus Dru. Common in August on the flowers of golden rod.

CTENUCHA.

Virginica Charp. Common in June on flowers of wild blackberry. Larvæ hybernate, and feed on grass.

CRAMBIDIA.

Pallida Pack. Rather common through August.

Casta Sanborn. Very rare. Middle September.

LITHOSIA.

Bicolor Grt. Rare.

LEBENA.

Trinotata Wlk. Rare in May. Found at rest on the trunks of trees.

Orvilla Grt. Rather rare, found in June in the same places as the last species.

ARGYROPHES.

Pustulata Wlk. Quite rare; we once took a number of specimens of this rare moth in the evening in a pasture nearly covered with gray birches.

Cilicoides Grt. Very rare; we never met with this species until 1898, when we took three at light during the first of July.

HYPOPREPIA.

Miniata Kirby. Common at light in July.

Fucosa Hbn. Not so common as the last and found at the same time.

CLEMENSIA.

Alabata Pack. Rare. Found at rest on tree trunks during July and August.

EUBAPHE.

Læta Gn. Rare. July.

Opella Grt. Quite rare. We have found this species in June on a rather high hill covered with hard wood sprouts. The moths were at rest on the upper side of the leaves some four or five feet from the ground, and owing to their peculiar flight and dark color are very hard to take.

Immaculata Reak. Common during June and July in old fields.

Var. *trimaculosa* Reak. Same time and place as the preceding.

Aurantiaca var. *rubicundaria* Hubn. Rare. In fields of grass in June, July and August.

Var. *ferruginosa* Wlk. Common. Same dates as preceding. The larvæ are small black bears, looking like the young larvæ of *Arctia virgo*. They feed on grass.

Var. *brevicoris* Wlk. Not common.

Var. *quinaria* Grt. Not common.

HAPLOA.

Clymene Brown. Very rare. June and July.
Lecontei Gur. Very rare. July.

UTETHEISA.

Bella Linn. Rare in this locality. July.

CYCNIA.

Tenera Hubn. Not common. July.
Oregonensis. Not common. July. The larvæ are small yellowish white bears and feed on dog bane.
Egle Dru. Common. June. Larvæ on milkweed.

HALISIDOTA.

Tessellaris A. and S. Common. June. Larvæ on apple, quince, etc.
Maculata Harr. Rarer than the other two species. June and July. The bright yellow, black tufted larvæ are found on alder and ash.
Caryæ Harr. Common. June. The white, black-tufted larvæ are found on a number of fruit and shade trees; they are gregarious during the early stages, but when half grown wander about singly like the tent caterpillar.

ECPANTHERIA.

Ocularia Fabr. Very rare. The large black hairy larvæ are seen crossing highways in the late fall, like that of *P. isabella.*

ESTIGMENE.

Acræa Dru. Common. Larvæ feed on a variety of plants, and the moth is on the wing in May, June and July.

HYPHANTRIA.

Cunea Dru. Common. May and June. The larvæ feed on several kinds of fruit trees, but aside from disfiguring the trees for the time, they do little damage, as they get in their work so late in the fall that the leaves are nearly ripe.

PYRRHARCTIA.

Isabella A. and S. Common. Last of May and through June. The larvæ are the common reddish brown and black bears that are seen hurrying across the highways on warm Indian summer days late in fall, looking for a place to pass the winter.

PHRAGMATOBIA.

Fuliginosa Linn. Not common. May. Hibernating larvæ are 1.25 inches long, color black, thickly covered with rather short stiff bristles which spread in all directions so as to nearly conceal the body color. The bristles vary in color in different specimens from reddish brown to foxy yellow, with the first three segments much darker, nearly black, especially on the sides. Others are a dirty yellow buff all over with no dark shade on the first three segments. The bristles are nearly of a length, and look as though sheared, much the same as the larvæ of *Pyrr-*

harctia isabella. We have never seen any larvæ of this species that could be mistaken for that of *assimilans*, var. *franconia* Slosson. The larvæ of the latter species is more slender, light yellowish white or straw color, with rather long soft bristles of the same color as the body, and lacks the usual dark shade found on the anterior segments of *fuliginosa*.

Assimilans var. *franconia* Slosson? Rare. Whether this is var. *franconia* or an undescribed species we do not know, we are very sure it is not *fuliginosa*, but have never seen an authentic specimen of *franconia*, and while it does not just agree with Mrs. Slosson's description and figure it comes very near it.

The larva was found feeding on the flowers of the common thoroughwort. It is pale yellow, thickly covered with rather long soft light yellow hair. It looks almost exactly like the larvæ of *Cycnia oregonensis* and would be taken for it. The moth came out in July.

SPILOSOMA.

Virginica Fb. Common during most of the summer.

Prima Sloss. Rare. June. Larvæ black with a narrow pale yellow dorsal line, and covered with rather long stiff black bristles. Feeds on grass and passes the winter in the pupa state.

Antigone Strecker. Rare. June.

CALLARCTIA.

Virgo Linn. Common. July and August. The hibernating larvæ are black, and covered with stiff black bristles; when found in early spring, after moulting, the bristles become reddish brown with those on the dorsal part of the last four segments quite dark, nearly black.

Virguncula Kirby. Rare. June and July. The larvæ hibernate and are black, covered with rather long black bristles with a reddish shade on the sides.

Parthenice Kirby. Common. July to September. We have had a large number of the larvæ of this species and *A. virgo*, and cannot separate them, as there is no difference except in size, and even this won't work with a small *virgo* and large *parthenice*. There may be a difference in the early stages, we have not had any *parthenice* larvæ during the first two stages, hibernating larvæ of *virgo* being black.

Anna var. *persephone* Grt. Rare, May and June. We have never seen the larvæ of this species.

MIMARCTIA.

Argæ Dru. Common. Two broods. May and August.

CYMBALOPHORA.

Phyllira Dru. Rare. May and June. This species shows great variation, scarcely two specimens being just alike. The larvæ on their moult are jet black thickly covered with stiff black bristles.

APANTESIS.

Nais Dru. Rare. Two broods June and August. We have never seen the larvæ of this species.

HYPOCAMPA.

Caja race *americana* Harris. Very rare.

EUTHISANOTIA.

Unio Hbn. Rather rare. June. Larvæ on grape.

Grata Fbr. Rare. July. These two species have usually been classed among the *Bombycidæ*, and for that reason we put them here now, though they belong in the Noctudiæ.

NOTOLOPHUS.

Antiqua Linn. Common. Two broods July and September.

Definita Pack. Rare. September.

Lencostigma A. and S. Common. July to October.

OLENE.

Cinnamomea G. and R. Rare. August.

Leucophæa A. and S. July. Rather common. Larvæ on apple, cherry, etc.

Achatina A. and S. Quite common. July and August. We have had the larvæ of all three species and find them very distinct, *leucophæa* being nearer to *cinnamomea* than *achatina* in the larvæ.

EUDEILINIA.

Herminiata Gn. Rather rare. July, in wet meadows. This species has been classed as a Geometrid, and has all the habits of that family.

ORETA.

Rosea Wlk. Very rare. August.

Irrorata Pack. Very rare. Last of June.

PLATYPTERYX.

Arcuata Wlk. Common. May, June and July.

FALCARIA.

Bilineata Pack. Rather common. Three broods. Larvæ on birch.

EUCLEA.

Delphinii Bdv. This species and the var. *S. quercea* H. Sch., *interjecta* Dyar., and *viridiclava* Wlk. are common in June. Larvæ on apple.

PHOBETRON.

Pithecium A. and S. Rare. Larvæ on apple, oak, etc. This species has the most peculiar looking larva of any species found here, though that of *Falcaria* is a close second.

APODA.

Biguttata G. and R. Rare. Middle July.

TORTRICIDIA.

Flexuosa Grt. Rare. July. Larvæ on maple.

Flavula H. Sch. Rare. July.

Testacea Pack. Rather common. June.

Fasciola H. Sch. Rather common. June and July. Larvæ on maple and not to be distinguished from *T. flexuosa*, found at the same time on the same tree, except that the *flexuosa* larva was a little larger and slightly marked with red.

PACKARDIA.

Elegans Pack. Rare. July.

Geminata Pack. Common. June.

Goodellii Grt. Rare. June. We have no doubt but that this is a good species. The moth is decidedly different from *geminata* in shape and markings.

GLUPHISIA.

Septentrionis Wlk. Rare. June and July.

EUMELIA.

Lintneri Grote. Rare. First of May.

APATELODES.

Angelica Grt. Rather rare. Larvæ on ash.

DATANA.

Ministra Wlk. Common. Larvæ on a large variety of fruit and forest trees.

Angusii G. and R. Rare. Larvæ on hickory.

Drexelii Edw. Common. Larvæ on *Hamamelis.*

Major G. and R. Common. Larvæ on *Andromeda.*

LIGUSTRINA.

Integerrima G. and R. Rare. Larva on hickory.

Contracta Wlk. Rare. Larva on several forest trees, like oak, chestnut, hickory *and Hamamelis.*

ICHTHYURA.

Apicalis Wlk. Rather rare. Larvæ on poplar, and closely resembles that of *Ich. albosigma.* The moth appears in May and June.

Strigosa Grt. Rare. June.

Inclusa Hbn. Sometimes common. April, May, July and August. Larvæ on poplar.

Bruceii H. Edw. Common. May, July and August. Larvæ on willow.

Albosigma Fitch. Common. April, May, July and August. Larvæ on poplar.

NADATA.

Gibbosa A. and S. Rare. June and July. Larvæ in oak.

LOPHODONTA.

Angulosa A. and S. Rare. June and July.
Ferruginea Pack. More common than the last. June.
Basitriens Wlk. Rare. Middle July.

DRYMONIA.

Georgica H. Sch. Rare. Last of June.

PHEOSIA.

Dimidiata H. Sch. Not common. June and August. Larvæ on poplar and willow.

NOTODONTA.

Stragula Grt. Quite common. July. Larvæ on poplar and willow.

NERICE.

Bidentata Wlk. Common. June and August. Larvæ on elm.

SYMMERISTA.

Albifrons A. and S. Rare. May. Larvæ on Oak.

XYLINODES.

Lignicolor Wlk. Rare. June.

SCHIZURA.

Ipomeæ Doub. Rare. July.
Leptinoides Grt. Rare. June.
Apicalis G. and R. Rare. June and July.
Unicornis A. and S. Common. July. Larvæ on apple, plum and cherry.
Eximia Grt. Rare. July.
Concinna A. and S. Common. May and June. Larvæ on apple, pear, willow, etc.

SEIRODONTA.

Bilineata Pack. Rare. June.

HETEROCAMPA.

Guttivitta Wlk. Rather common. May and June. Larvæ on oak.
Biundata Wlk. Rare. June.

MACRUROCAMPA.

Marthesia Cram. Rare. July.

CERURA.

Borealis Bdv. June. Larvæ on blackcherry.
Occidentalis Lintn. Rather rare. June. Larvæ on willow.
Cinerea Wlk. Quite common. June and July. Larvæ on willow.

SAMIA.

Cecropia Linn. Common. May, June and July. Larvæ feed on a large number of fruit and forest trees.

CALLOSAMIA.

Promethea Dr. Common. May and June. Larvae on lilac, wild cherry, black birch, hazel and buttonbush.

TROPÆA.

Luna Linn. Common. June and July. Larvæ on apple, beech, etc.

TELEA.

Polyphemus Cram. Common. June and July. Larvæ feed on a large number of trees and shrubs.

AUTOMERIS.

Io Fab. Common. June and July. Larvæ are general feeders.

HEMILEUCA.

Maia Dr. Common. September. On low land. Moth flies by day. Larvæ feed on meadow sweet.

ANISOTA.

Stigma Fab. Rare.

Virginiensis Dr. Common. May. Larvæ on oak.

Rubicunda Fbr. June. Larvæ on maple.

CITHERONIA.

Sepulchralis G. and R. Very rare. Larvæ on pitch pine; full grown the last of July.

BASILONIA.

Imperialis Dr. Common. June. Larvæ on pine.

PHYLLODESMA.

Americana Harr. Rare. June.

CLISIOCAMPA.

Disstria Hbn. Sometimes common. Larvæ feed on a variety of trees.

Americana Fab. Common. July. Larvæ on apple, cherry, etc.

TOLYPE.

Velleda Stoll. Common. September and October. Larvæ on apple, plum, grape, peach and several forest trees.

Laricis Fitch. Rather rare. September. We have found a number of cocoons on small pines, which would indicate that it was one of its food plants.

COSSUS.

Centerensis Lintn. Rare.

PRIONOXYSTUS.

Robiniæ Peck. Rather common. Larvæ in red oak, white oak and and locust.

STHENOPIS.

Argenteomaculatus Ham. Common. June. Larvæ feed in the roots of gray birch, willow, alder, etc.

HEPIALUS.

Gracilis Grt. Common, July. The moth comes readily to light, often several at once.

A New Papilio from the Orient.

By George A. Ehrmann, Pittsburg, Pa.

Papilio tahmourath spec. nova.

Male.—Allied to *Pap. agestor* Gray. Head, palpi, antennæ and thorax are the same as in *P. agestor*. Abdomen is darker and has broader, grayish rings than are met with in *P. agestor*. Forewings.—The upperside have the same markings that are met with in *P. agestor*, except that the gray is more suffused with blackish scales, and that the discoidal cell has four unequal bluish ashen gray bars, whilst in *P. agestor* this cell is unbroken and is filled in its entirety. Hindwings on the upperside: the ground color is of a deep velvety black, whereas in both sexes of *P. agestor*, it is reddish fulvus. The discoidal in this member, too, is decorated with four unequal bars, similar to that of the forewings, and which is not the case in *P. agestor*. The sub-marginal row of lunated spots is almost wanting, the two nearest the apex, are the most prominent. There is also a large reddish triangular patch on the anal angle, extending upward to the discoidal cell. This patch is toothed toward the abdominal margin, but well defined inwardly. The abdominal margin is black. Forewings on the underside; the markings are all the same as above, but a little lighter in color; on this side of the forewings in *P. agestor* the apex is a pale brown. In *Pap. tamourath*, this is wanting, and the colors are uniform throughout. Hindwings on the underside; the ground color is pale reddish fulvous, with the grayish markings as above, but much lighter. There are no dark brown markings between the nervules 2, 3 and 4, which are found in both sexes of *P. agestor* Gray.

Exp. 3½ inc.

Type.—Coll. Ehrmann.

Hab.—S. China.

Note.—D'Herbelot tells us that there is a Persian story, that Tahmourath was the first to cultivate rice and to nourish silk worms, and as China is the land of rice and silk, the writer gladly dedicates this beautiful creature to Tahmourath's honor. This species will form the fourth member of the sub-genus *Cadugoides*. Viz.: *agestor* Gray, *tahmourath* Ehr., *govindra* Moore and *epycides* Hew.

Prof. H. F. Wickham of the University of Iowa has returned from a collecting trip to the Owens Valley region and adjacent mountains in California. He did some work in regions never before investigated entomologically and also worked over some of the ground that had been investigated by Dr. Horn years ago. The trip was quite successful.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., NOVEMBER, 1902.

Science should not be made ridiculous by silly or absurd statements. We are moved to make these remarks from seeing the term "frightened mouse color" in a description of an insect, *Colletes salicicola*. Now, if there are any accurate observations to prove that a mouse changes color when "pussy" is after it, we are willing to humbly beg the pardon of the person or persons using the term. We might suggest a photographic apparatus by which accurate observations could be made along these lines. Mice and cats are both common. It is said that under certain conditions negroes turn white (we have not observed it), and as a parallel term to "frightened mouse" color, why not use "frightened negro" white? We have seen negroes turn white in the dissecting-room pickle, but in that case their fright was over. After this we will carefully look at every mouse we see run across the floor, and will shy a boot after it to produce a possible change of color. Should not the species of mouse be mentioned? What color do white mice assume when they have neurasthenia? Doubtless some mice of the same species are paler than others, and we suggest the term pale mouse color, but we hesitate to accept a nomenclature parallel to "frightened mouse" color or "frightened negro" white. We respectfully call the attention of the United States Government Bureau of Standards to this subject, and suggest that they investigate this matter in conjunction with the Mammalogical Bureau of the Department of Agriculture.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

ARRANGEMENTS are being made by the State Entomologist of New York to supply schools desirous of such aid with small collections of insects upon the payment of a nominal fee. These collections are to be designed to illustrate courses in zoology, biology, nature study, and it is announced that they will be classified into the following divisions:

1. A systematic collection of about 100 representatives of the principal orders, with series illustrating the transformation of species having both complete and incomplete metamorphoses.

2. A collection of about 100 of the more common interesting species found in the field, together with series illustrating the various stages and habits of some of the more important forms.

3. The same as number 2 but composed largely of insects met with in the Spring.

4. Special collections of about the same size as those described above and representing limited groups, for example: Economic insects, mimicy, bees and their allies, flies, butterflies and moths, etc. These special collections will be prepared only in response to several requests. Other phases of insect life may be illustrated if there be a demand for it.—*Newspaper.*

NOTE ON LARVA OF *Schizura concinna.*—On a recent walk I captured a colony of full grown larvæ of *Schizura concinna* feeding on blackberry. While transferring them to a breeding cage I noticed an odor of sulphuric acid, which I was much puzzled to account for until it occurred to me to smell one of the larvæ. I thus discovered that the odor came from a transparent watery fluid that exuded from the caterpillar's skin wherever it was touched. When held close to the nose the odor was so strong as to produce an involuntary checking of the breath familiar to any one who has inhaled ammonia fumes. The fluid did not tarnish silver when rubbed upon it, but showed quite a strong acid reaction upon litmus paper. This larva furnishes a beautiful example of the combination of a strong defensive equipment with warning coloring.—F. H. FOSTER, Claremont, N. H.

IN 1898 Mr. A. G. Weeks Jr., of Boston, Mass., sent Wm. J. Gerhard to the districts near La Paz, Bolivia, for the purpose of collecting diurnal Lepidoptera. Sixty weeks were spent in this work and many new and rare species were discovered. An account of the journey in given in a publication entitled "Illustrations of Hitherto Unfigured Lepidoptera," by A. G. Weeks Jr. The entire expense of the journey and subsequent publications was borne by Mr. Weeks, who has also supplied the beautiful colored plates of new Bolivian Lepidoptera which have appeared in the NEWS. This liberal gentleman is doing good work for the advancement of science, and we trust that he may have many followers.

Entomological Literature.

COMPILED BY H. L. VIERECK AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology, unless monographs, will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in heavy-faced type refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. The titles of all papers will be quoted in the original and not translated.

3. American Naturalist, Cambridge.—**4.** The Canadian Entomologist, London, Ont.—**5.** Psyche, Cambridge.—**7.** United States Department of Agriculture, Washington.—**9.** The Entomologist, London,—**14.** Proceedings of the Zoological Society of London.—**15.** Biologia Centrali-Americana, London.—**24.** Berliner Entomologische Zeitschrift, Berlin.—**38.** Wiener Entomologische Zeitung, Vienna.—**46.** Tijdschrift voor Entomologie, The Hague.—**50.** Proceedings of the U. S. National Museum, Washington.—**84.** Insekten Börse, Leipsic.—**116.** Biological Bulletin, Boston.

THE GENERAL SUBJECT.—Aigner-Abafi, L. v.—Ueber Mimikry. Allgemeine Zeitschrift für Entomologie, Neudamm, vii, No. 18, pp 368-372.—**Banks, N.** An Index to Bulletins Nos 1-30 (New Series) (1896-1901) of the Division of Entomology, **7,** Bull. No. 36 (n. s.).—**Kellogg, V. L.** The Development and Homologies of the Mouth Parts of Insects, **3,** xxxvi, pp 683-706 —**Verhoeff, C.** Klassen und Ordnungen der Arthopoda. Thier-Reich, 5 Bd, II Abth, Leipzig, 1902.—**Wasmann, E.** Species novæ Insectorum Termitophilorum ex America Meridionali, **46,** 45 Deel, Jhg., 1902, p. 95.

ECONOMIC ENTOMOLOGY.—Britton, W. E. The Apple-tree Tent-caterpillar. Bulletin 139, Connecticut Agricultural Experiment Station, New Haven.—**Felt, E. P.** Seventeenth Report of the State Entomologist on Injurious and other Insects of the State of New York. Bulletin 53, New York State Museum, Albany. Elm Leaf Beetle in New York State. Bulletin 57, New York State Museum, Albany.—**Hunter, W. D.** The Present Status of the Mexican Cotton-boll Weevil in the United States. Year-book of the U. S. Department of Agriculture, 1901.—**Simpson, C. B.** Report on Codling-moth Investigations in the Northwest during 1901, **7,** Bulletin 35 (n. ser.).—**Stedman, J. M.** The more Important Insects Injurious to Wheat in Missouri. Thirty fourth Annual Report of the Missouri State Board of Agriculture, pp. 55-141.

ARACHNIDA.—Banks, N. A List of Spiders collected in Arizona by Messrs. Schwarz and Baker during the Summer of 1901,* **50,** xxv, pp. 211-221.—**Cambridge, F. P.** On the Spiders of the Genus *Latrodectus* Walckenaer, **14,** 1902, vol. I, pt. II, pp. 247-261, pls. xxvi and xxvii. Araneidea (Central America and Mexico), vol. I, pp. 305-308, and vol. II, pp. 361-376, pls. xxxiv, xxxv, **15,** pt. clxxii.—**Pocock, R. I.** Arachnida Scorpiones (Central America and Mexico), pp. 1-16, pls. i, ii, **15,** clxxii.

MALLOPHAGA.—**Kellogg, V. L.** and **Kuwana, S. I.** Mallophaga form Birds. Papers from the Hopkins Stanford Galapagos Expedition, 1899, x. Entomological Results (8). P. Wash. Acad., iv, pp. 457–499.

ORTHOPTERA.—**Walker, E. M.** A Preliminary List of Acridiidæ of Ontario, **4,** xxxiv, pp. 251–258.

HEMIPTERA.—**Ball, E. D.** New Genera and Species of N. A. Fulgoridæ,* **4,** xxxiv, pp. 259–266.—**Cockerell, T. D. A.** A Contribution to the Classification of Coccidæ (concl.), **9,** xxxv, pp. 257–260.—**Fernald, Mrs. C. H.** On the Type of the Genus Coccus. **4,** xxxiv, pp. 232–233.—**Hansen, H. J.** On the Morphology and Classification of the Auchenorrhynchous Homoptera, iiv, **9,** xxv, pp. 260-263.—**King, G. B.** The Association of Coccidæ, **5,** ix, pp. 401–404.—**Kirkaldy, G. W.** and **Edwards, S.** Anmerkungen über bemerkenswerte Pyrrhocorinen (Rynchota), **38,** xxi, heft vii, pp. 161–172. —**Wasmann, E.** See General Subject.

ODONATA.—**Needham, J. G.** Three New Gomphines,* **4,** xxxiv, pp. 275–278.

ISOPTERA.—**Silvestri, F.** Ergebnisse biologischer Studien an Südamerikanischen Termiten. Allgemeine Zeitschrift für Entomologie, Neudamm, vii, No. 17, pp. 326–335.

LEPIDOPTERA.—**Dyar, H. G.** Life Histories of North American Geometridæ, **5,** ix, pp. 407–408. Descriptions of the Larvæ of some moths from Colorado, **50,** xxv, pp. 369–412.—**Eliot, I. M.** and **Soule, C. G.** Caterpillars and their Moths. The Century Co., New York.—**Grote, A. R.** Die Platypterygiden, xix, p. 314 —**Lyman, H. H.** Hydrœcia Nelita Strecker, **4,** xxxiv, p. 274.—**Rothke, Max.**—[On Vanessa Antiopa, L.] **84,** xix, pp. 314-315.—**Scudder, S. H.** Group Characteristics of Some North American Butterflies, iv, **5,** ix, pp. 405–407.—**Smith, J. B.** Contributions toward a Monograph of the Lepidopterous Family Noctuidæ of Boreal North America. A Revision of the Moths referred to the Genus *Leucania*, with Descriptions of New Species,* **50,** xxv, pp. 159–209 —**Speiser, P.** Bemerkungen über die "Erstarrungswärme" der Schmetterlingspuppen, **84,** xix, pp. 306–307.—**Stichel, H.** Aufteilung der Gattung *Opsiphanes* Westw., Beschreibung neuer Brassoliden und synonymische Notizen, **24,** xlvi, heft, iv, pp. 487–524.—**Therese, Prinzessin von Bayern.** Von Ihrer Königl. Hoheit der Prinzessin Therese von Bayern auf einer Reise in Südamerika gesammelte Insekten, iii, Lepidopteren, **24,** xlvi, heft, ii, iii, 235–307.

DIPTERA.—**Coquillett, D. W.** New Diptera from North America,* **50,** xxv, pp. 83–126.—**Hendel, F.** Strongylopthalmus, eine neue Gattung der Psiliden (Dipt.), **38,** xxxi, heft, vii, pp. 179–181.—**Johnson, C. W.** New North American Diptera,* **4,** xxxiv, pp. 240–242.—**Osten Sacken, C. R.** On a Distinctive Character of the Imagos of the Suborders of Diptera: *Orthorrhapha brachycera* and *Cyclorrhapha athericera*, introduced by Latreille (1825) but overlooked by Later Authors. The Entomologists' Monthly Magazine, London (2), xiii, pp. 228–229.—**Snodgrass, R. E.** The Inverted Hypopygium of *Dasyllis* and *Lophrea*, **5,** ix, pp. 399–400, pl. 5.

COLEOPTERA.—**Champion, G. C.** Coleoptera (Central America and Mexico). Vol. iv, pt. 4, pp. 1-32, pls. I, II, **15,** clxxii.—**Fyles, T. W.** A Tortoise Beetle new to Quebec, 4, xxxiv, pp. 273-274.—**Hunter, W. D.** The Present Status of the Mexican Cotton-boll Weevil in the United States. Yearbook of the U. S. Department of Agriculture, 1901.—**Jacoby, M.** Descriptions of New Species of Coleoptera of the Family Halticidæ from South and Central America, **14,** 1902, vol. i, pt. 2, pp. 171-204, pl. xx.—**Lewis, G.** On New Species of Histeridæ.* Annals and Magazine of Natural History, London, x, pp. 223-239.—**Pic, M.** Etude Dichotomique sur les Trichodesona Lec. du Brésil. Annales de la Societé Entomologique de Belgique, xlvi, viii, pp. 408-409.—**Reitter, E.** Neuer Beitrag zur Systematischen Gruppeneintheilung der Melolonthidæ, **38,** xxi, heft vii pp. 173-176.—**Schulz, W. A.** Biologische, Zoogeographische und synonymische Notizen auf der Käferfauna des unteren Amazonenstroms, **24,** xlvi, heft ii and iii, pp. 321-338.—**Sharp, D.** Coleoptera (Central America and Mexico). Vol. ii, pt. 1, pp. 673-688, **15,** pt. clxxi.—**Therese, Prinzessin von Bayern.** Von Ihrer Königl. Hoheit der Prinzessin von Bayern auf einer Reise in Südamerika, gesammelte Insekten, iv, Coleoptera. **24,** xlvi, heft 4, pp. 463-486.—**Uyttenboogaart, D. L.** List of Beetles collected in the months of Aug. and Sept., 1900, in Surinam (Dutch Guyana), and on the island of Barbadoes, **46,** 45 Deel, Jhg., 1902, p. 112.—**Voigts, H.** Zur Synonymie der Meloiden Gattung *Zonabiris*, **38,** heft 7, pp. 177-178.—**Wassmann, E.** See General Subject.

HYMENOPTERA.—**Ashmead, W. H.** Classification of the Fossorial, Predaceous and Parasitic Wasps.* Papers No. 8 and 9, **4,** xxxiv, pp. 219-231 and 268-273.—**Cockerell, T. D. A.** A new Bee of the genus Bombomelecta,* **4,** xxxiv, p. 267.—**Crawford, J. C., Jr.** Notes and Descriptions of Bees,* **4,** xxxiv, pp. 234-240.—**Ducke, A.** Beobachtungen über Blütenbesuch, Erscheinungszeit, etc., der bei Para vorkommenden Bienen. Allgemeine Zeitschrift für Entomologie, Neudamm, vii, nr. 18, pp. 321-326, 360-368.—**Emery, C.** An Analytical Key to the genera of the family Formicidæ, for the identification of the workers, **3,** xxxvi, pp. 707-725.—**Perez, J.** Contribution a l'étude des Xylocopes.* Actes de la Société Linnéene de Bordeaux, lvi, pp. 1-128.—**Robertson, C.** Synopsis of Halictinæ,* **4,** xxxiv, pp. 243-250.—**Wasmann, E.** Neues über die zusammengesetzten Nester und gemischten Kolonien der Ameisen. Allgemeine Zeitschrift für Entomologie, Neudamm, vii, No. 17, pp. 340-345.—**Wheeler, W. M.** An American Cerapachys, with Remarks on the Affinities of the Cerapachyinæ, **116,** iii, No. 5, pp. 181-191.

Caterpillars and Their Moths, with Illustrations from Photographs of Living Caterpillars and Spread Moths. By Ida Mitchell Eliot and Caroline Gray Soule. The Century Co., New York. Price, $2.00 and 18 cents postage. This work is an exact record of the authors' experiences, aided by reference to the standard works on the subjects. Its great value

lies in the fact that it gives the life history of forty-species within its covers, and illustrates them by half tones. The literature of the moths is so scattered in numerous publications that the beginner is usually at a loss to know where to look for information, and this work will therefore be indispensible to those for whom it is intended. The authors have had a wide experience in rearing moths, and we would suggest that they do not stop here, but give us an additional forty-three or more species. The illustrations, as a whole, are quite satisfactory. From the standpoint of artistic effect and entomological technic the illustrations would have looked better, if the specimens had been symmetrically spread. In some cases they hardly look like bred specimens. We can heartily recommend the work as being very useful and badly needed.

OBITUARY OF AN ENTOMOLOGIST.

O gentle reader, drop a tear
For one beneath this stone;
In life he named 7000 bugs,
To science, all unknown.

But now, alack! he is condemned,
In a place I dare not name;
With his *own books*, through endless years,
To identify the same.—A. VICTIM

Doings of Societies.

The regular monthly meeting of the Chicago Entomological Society was held in the John Crerar Library, on Thursday evening, September 18, 1902.

Eight members were present. President Longley in the chair.

In regard to the selection of a topic for future discussion, Mr. Adams moved that a committee, composed of Messrs. Healy and Tower, with Mr. Longley as chairman, be appointed to select subjects. Motion carried.

Prof. Tower promised to take the initiative in the talk at the October meeting. Subject to be announced later by the secretary.

For the November meeting, Mr. Healy agreed to lead in a discussion on *Satyrus alope* in its various forms, as illustrating climatic influence on races.

Mr. Longley opened the evening discussion on Genus *Homoptera*, and exhibited an interesting series of specimens. The exhibit showed the remarkable variation in the genus, and also the gradations from one species into another. Specimens were also shown by Mr. Healy.

Adjourned at 9.55.

JOHN COMSTOCK, *Secretary*.

The September meeting of the Feldman Collecting Social, held at the residence of Mr. H. W. Wenzel, 1523 South Thirteenth street, Philadelphia. Ten persons were present.

The Field Day Committee reported a successful meeting at Anglesea, N. J., September 1st.

Mr. H. Wenzel stated that the supposed new Cerambycid mentioned at the last meeting, had proven to be *Pimatodes ater*. The specimens taken at Anglesea, N. J., were found on oak. He also exhibited part of the Carabidæ taken, by himself and son, at Balsam in the mountains of North Carolina, at altitudes from 3,500 to 7,000 feet, during the past summer. About fifty species of this family were taken, including many rare ones.

Mr. Daecke reported that he had formerly found certain Hymenoptera plentiful about a scale insect on *Liriodendron*, but this year he had failed to find any specimens about the scales. At Lucastown, N. J., he had taken 8 specimens of *Celithemis fasciata*, a species new to the State.

WILLIAM J. FOX, *Secretary*.

OBITUARY.

It is with sorrow and regret that we announce the death of R. J. Weith, of Elkhart, Indiana. Mr. Weith was born in Prussia, September 15, 1847. At the age of twenty-five he came to America. All his spare time was spent in entomological study. The deceased was best known from his work in Hymenoptera and Odonata, in which branches he made some interesting discoveries and captures. He will be greatly missed by a large circle of friends and correspondents.

EXCHANGES.

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☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, the sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly; 4th, All insects must be mounted. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2-cent stamp with all insects for return of names. **Please put date of capture and exact locality on each specimen.** Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Dytiscidæ from Florida and other Southern States, from Illinois and Ohio, and from the Northwest, Alaska, British Columbia and Hudson Bay wanted in exchange for cash.—Address John D. Sherman, Jr., 148 East Eighteenth Street, New York City.

Lepidoptera.—Wanted for cash: cocoons of *A. pernyi* and eggs of *A. yama-mai* and *A. pernyi.*—R. Ludwig, 513 Empire Bldg., Atlanta, Ga.

Will collect any order in Pennsylvania and New Jersey this season in exchange for Hymenoptera.—J. Chester Bradley, 2221 Spring Garden St., Philadelphia.

Wanted.—Specimens of the genus Homoptera (except *edusa* and *lunata*), from all parts of the United States and Canada, for comparison. Will give other North American Lepidoptera in exchange.—W. E. Longley, 115 South 64th Ave,, Oak Park, Ill.

Lepidoptera.—I would like to correspond and exchange with some new beginners.—Phineas Whiting, 106 Fairmount Street, Lowell, Mass.

Will exchange for Holland's Butterfly book, other literature treating of Lepidoptera, or for desirable specimens of that order, an absolutely new copy of "Howards Insects." See adv. for list of Utah material which I have for exchange.—L. I. Holdredge, Hudson High School, Hudson, N. Y.

Will collect in any order in exchange for Coleoptera, Hermiptera and Lepidoptera.—Charles Stevenson, 906 St. Urbain Street, Montreal, Quebec, Canada.

Exchange Wanted.—Particularly *Catocalas.* Send list to Jos. H. Reading, 775 North Rockwell Street, Chicago.

Plusias Wanted.—Having just described a dozen new species of *Plusias*, all represented by females, I will pay liberally for males of any of the same, or for any *Plusias* of which I have short series. Correspondence solicited.—R. Ottolengui, 80 W. 40th St., N. Y. City.

Wanted.—"Classification of the Coleoptera of North America," by LeConte and Horn; will give cash or exchange for Volume in good condition.—M. E. Hoag, D.D.S., Maxwell, Iowa.

Lepidoptera.—N. A. Lepidoptera desired. Those willing to collect, in exchange for European specimens, please communicate with James McDunnough, Kleist Str. 42, Berlin, Germany.

Coleoptera.—Twenty-five California species of Cleridæ, Buprestidæ and Malachidæ, in sets of four, for species in the same families not in my collection.—Ralph Hopping, Redstone Park, Kaweah, Tulare Co., California.

For Exchange.—Butterflies of Southwestern Ohio, including *F. henrici* and *B. ajax*. All specimens perfect and fresh. Send lists. Annette F. Braun, 2702 May St., Cincinnati, Ohio.

Argynnids Wanted.—*Arg. electa, atlantis, leto, cypris* and *aphrodite*. Have numerous duplicates, especially *noctuiidæ*. F. H. Wolley Dod, Millarsville, Alta, N. W. T., Canada.

Lepidoptera.—Superb examples of *Hemileuca tricolor, Catocala chelidonia, babayaga, Pam. python, Apatura leila* and other extreme rarities in exchange for species of equal interest. O. C. Poling, Quincy, Ills.

Cocoons of *Samia Cecropia* to exchange for cocoons of other Lepidoptera. Mrs. J. M. McNamar, 2020 Franklin Avenue, Toledo, Ohio.

I will make collections in the Mississippi Valley of Diurnal Lepidoptera in exchange for specimens of other localities. C. H. Ross, Burlington, Iowa.

Lepidoptera.—North American Lepidoptera for exchange for other North American specimens new to my collection. Send lists to Otto Buchholz, 602 Adams Ave., Elizabeth, N. J.

Chionobas katahdin.—I have a few specimens to exchange for other rare Lepidoptera. Send list of rarities only. I most desire Bombycidæ, Sesiidæ, Cossidæ, Hepialidæ, etc.—H. H. Newcomb, 35 Court Street, Boston, Mass.

I have some specimens in papers of the rare and beautiful *Amp. versicolor*, and also live pupæ of *Paonias astylus* and *Sphinx eremitus*. Exotic and European butterflies to exchange for Native *Sphinx* and *Catocala*.—Chas. F. Timm, 131 Ralph St, Brooklyn, N. Y.

Lepidoptera.—Rare North American *Catocala* in exchange for others of the same genus. Will also exchange other species and live pupæ for native and exotic Lepidoptera.—H. J. Erb, 322 E. 13th St., New York.

Lepidoptera.—Western and northern Argynnids especially desired, but will exchange for anything new to collection or for perfect specimens of less rare material. I offer *Chionobas æno. brucei, uhleri* and *chryxus; Colias meadii, alexandra* and *scudderi; Melitæa brucei, minuta*, etc. Also many Argynnids and local species of Catocalæ.—Arthur J. Snyder, Belvidere, Ill.

Wanted.—Live pupæ of all kinds of native Sphinx in exchange for good papered material as *A. angulifera, Sp. luscitiosa* and others. George Kircher, 573 Germania Ave., Jersey City Heights, N. J.

Lepidoptera.—Have many fine things from the West and South to exchange. Lists solicited. John & Hurd Comstock, 1572 Ridge Avenue, Evanston, Ill.

Lepidoptera.—I have 200 to 300 species to offer in exchange. Prefer mounted specimens. A. Kwiat, 701 Larrabee St., Chicago, Ill.

Lepidoptera.—Wanted for cash or exchange. Living pupæ of North American Lepidoptera. Am. Ent. Co., 1040 De Kalb Avenue, Brooklyn, N. Y.

Lepidoptera.—Wanted pupæ of North American species for cash or exchange. American Ent. Co., 1040 De Kalb Ave., Brooklyn, N. Y.

Lepidoptera.—I desire exchange with collectors in all parts of North America, particularly Northwest and Southwest. No exotics. John L. Healy, 1137 Pratt Ave., Chicago, Ill.

I wish to secure, at once, specimens of all forms of *Satyrus alope* and *pegala* from all parts of U. S., accompanied by complete data. Will give good exchange or cash. John L. Healy, 1137 Pratt Ave., Chicago, Ill.

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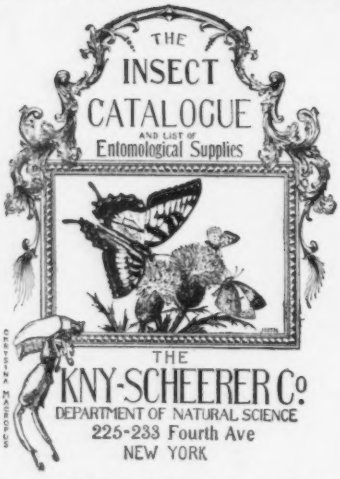

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